

Cutaneous Myiasis Associated with Tick Infestations in a Dog

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Abstract : A 12-year-old intact male, Alaskan Malamute dog, which lives in the countryside, was presented with inflammation and pain around perineal areas. Thorough examination revealed maggots and punched-out round holes lesion around the perineal region. Complete blood counts (CBC) and serum biochemical examinations showed no remarkable findings except mild anemia and mild thrombocytosis. The diagnosis was easily done, based on clinical signs and maggots identification. Cleaning with chlorhexidine, povidone-iodine lavage and hair clipping away from the lesions were performed soon after presentation. SNAP 4Dx Test (IDEXX Laboratories, Westbrook, ME, USA) was performed to rule out other vector-borne diseases since the ticks were found on the clipped area and vector-borne pathogens. The test result was negative. The dog in this case was treated with ivermectin (300 mcg/kg SC) one time. Also, treatments with amoxicillin clavulanate (20 mg/kg PO, BID) was established to prevent secondary bacterial infections. Then, myiasis resolved with 2 weeks and the affected area was healed.

Key words : Dog, Myiasis, Maggot, Ivermectin, Tick.

Introduction

Myiasis is an uncommon parasitic infection of dogs and cats determined by fly larvae (3). The adult forms of many dipterous flies are attracted to the wound or excrement and lay eggs on the wet warm skin, untreated wound or urine-soaked coats (3). The larvae are extremely destructive and produce lesions over extensive areas with punched-out round holes (8). More flies and larva were attracted to damaged tissues. Mostly affected regions are known as perinasal, perioral, peribuccal, perianal and genital area (2).

Several factors may predispose to myiasis, such as traumatic injuries, other dermatological disorders, cutaneous infestations caused by ticks or even other myiasis, for instance caused by the human bot-fly (2). Especially, wounded dogs are at higher risk of infestation and dogs living outdoors are also at higher risk for fly attack (5). As in other animals, in canine myiasis, the larvae invades and survives on the fresh, uncontaminated skin wounds, or contaminated skin wounds or coats matted with faeces (4).

Clinical manifestations associated with canine myiasis include numerous erythematous, furunculoid skin lesions with serous exudates. The application of pressure to such lesions may lead to the expulsion of the larva with serohemorrhagic or purulent exudation. The factors associated with clinical severity are known to be location and extent of the lesion, the rapidity of diagnosis (4). The diagnosis of myiasis can be easily done and is based on the clinical signs, and maggots identification (3,4).

Treatment of myiasis should include hair clipping and flushing around the lesions and cleaning with an antibacterial shampoo (10). Also, ivermectin and pyrethrin can be administered in order to kill the larva (2). Ivermectin is the drug against parasites that use gamma-aminobutyric acid and has been used to treatment ectoparasitic disease in dogs and cats (9). The purpose of this paper was to report uncommon case of canine cutaneous myiasis associated with tick infestations in Republic of Korea.

Case

A 12-year-old intact male, Alaskan Malamute dog, which lives in the countryside, was presented with inflammation and pain of perineal areas. The dog spent most of time at outdoors. On the history taking, it has been revealed that the patient showed a history of persistent perineal pain and scooting against trees. Thorough examination of the perineal region revealed maggots on perineal areas and lesions with punched-out round holes (Fig 1). When palpating the perineal area, patients presented the pain. The skin around perineal area was grossly inflamed with moist exudates. Body temperature, pulse and respiratory rate were all within reference ranges. The patient was estimated to show approximately 5% dehydrated. Complete blood counts (CBC) and serum biochemical examinations showed no remarkable findings except mild anemia (Hematocrit, 33.8%; Reference range, 37.0-54.0%) and mild thrombocytosis (PLT, $87 \times 10^3/\text{ul}$; Reference range, $200-500 \times 10^3/\text{ul}$). Based on clinical signs and maggots identification, the diagnosis was easily done.

Cleaning with chlorhexidine, povidone-iodine lavage and hair clipping away from the lesions were done soon after presentation. SNAP 4Dx Test (IDEXX Laboratories, West-

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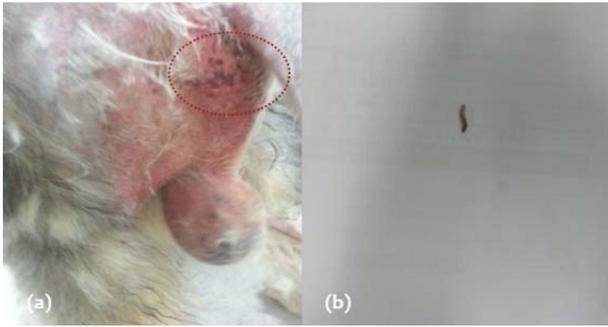


Fig 1. View of lesions with punched-out round holes (a) and a larva (b) immediately after extraction.



Fig 2. View of ticks after clipping around the lesion area of the dog.



Fig 3. Perineal region after treatment. Myiasis resolved within 2 weeks and the affected area was healed.

brook, ME, USA) was performed to rule out other vector-borne diseases since the ticks were found on the clipped area (Fig 2) and vector-borne pathogens which include *Anaplasma spp.*, *Ehrlichia spp.*, *Borrelia spp.* may elicit serious illness. The test result was negative. The patient was treated with ivermectin (300 mcg/kg SC) one time. Also, treatment with amoxicillin clavulanate (20 mg/kg PO, BID) was established to prevent secondary bacterial infections. No signs related to ivermectin toxicity were observed during the treatment period. Myiasis resolved within 2 weeks and the affected area was healed (Fig 3). In this case, the patient was successfully treated since the diagnosis was made earlier and the lesions were not advanced.

Discussion

There are some published reports of myiasis in dog but these reports have not addressed its epidemiological importance (5). Myiasis is more common disease in tropical regions where many flies are natural inhabitants. The most frequent hosts in rural areas are known to be cattle, horses, and dogs or cats (3). Several predisposing factors such as blood-sucking insects, poor hygiene, habitations, injuries provoked by trauma, climate, hair length, are known to be associated to myiasis installation (1,2). Canine cutaneous myiasis usually appeared to be on the untreated traumatic wound or matted hair, or in the presence of excrement, which implies that the owner negligence plays a major role in the occurrence of myiasis (1).

In this case, several factors have been thought to play a certain role in its development. Firstly, the patient had infected with the tick. Therefore, adult flies are attracted to the cutaneous wound induced by the tick. Secondly, because insects are prevalent in summer, the seasonal factors also could be a risk factor for the infestations. Finally, long coated outdoor dog are particularly prone to all kinds of infestations (7).

In conclusion, the diagnosis could be challenging considering the uncommon prevalence of myiasis and its predisposing factors, especially when it occurs in non-endemic countries. Therefore, both owners and practitioners should be aware of myiasis itself and its risk factors.

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진드기에 감염된 개의 피부 구더기증 1예

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요 약 : 시골에 사는 12년령의 중성화 안한 수컷 말라뮤트가 회음부위의 염증과 통증을 주호소로 내원하였다. 회음부 신체검사서 구더기와 구멍이 있는 피부 병변이 존재하였다. 혈액검사에서는 미약한 빈혈과 혈소판 증가증 이외에 특이소견은 보이지 않았으며 진단은 임상증상 및 구더기의 존재에 의해 쉽게 되었다. 즉시 삭모 및 소독을 실시하였으며 삭모 중 진드기가 발견되어 SNAP 4DX (IDEXX Laboratories, Westbrook, ME, USA)를 이용해 진드기 및 관련 병원체의 감염유무를 평가하였고 검사결과는 모두 음성이었다. 치료는 이버멕틴(300 mcg/kg)을 피하 주사로 한번 주사하였으며 2차 감염을 예방하기 위해 항생제를 처방하였다. 이 후 구더기증과 상처부위는 2주 이내에 치료되었다.

주요어 : 개, 구더기감염증, 구더기, 이버멕틴, 진드기